

TIMBER HARVESTING AND KFCA

This brochure deals with the harvesting equipment typically found on most logging operations in Kentucky. It serves as a reference leading to a better understanding of the nature of harvesting equipment and its potential impact on water quality. The subject headings are arranged in chronological order as they would normally occur in a timber operation, i.e. felling, skidding, and loading.

FELLING EQUIPMENT

Chainsaws

KFCA Concerns: Trees tend to grow towards the openings created by streams and channels, making it difficult to avoid felling into the stream. Directional felling in some cases can prevent tops from entering the stream.

Feller-Bunchers

Similar to a front-end loader, the Feller-Buncher has the ability to hold, saw and place trees in bunches to be skidded to the log landing.



KFCA Concerns: The machine can cause considerable disturbance, especially in wet conditions. Operators should take advantage of high flotation tires and other means to reduce site impact. Track machines distribute weight more evenly and cause less site damage, but they are slower. As with any heavy equipment, proper disposal of oil and hydraulic fluids is a concern.

SKIDDING EQUIPMENT

Wheeled Skidders

Classified as either cable or grapple skidders, their names are derived from the method used to attach the logs to the skidder. They come in a variety of sizes but all have four-wheel drive, good speed, high ground clearance, and diesel power as basic features.



Cable Skidder



Grapple Skidder

KFCA Concerns: Operating in wet conditions can cause considerable rutting. High flotation tires can reduce site impact. Cable skidders have the ability to winch logs from an area. This allows the skidder to stay out of the streamside management zone (SMZ). The ability to winch logs also cuts down on the number of skid trails. Grapple Skidders can have a greater impact on harvest sites, since they must drive up to the logs or bunches. Their inability to winch logs means they must enter SMZs and drive over more of the site. Some Grapple Skidders include a winch to overcome these limitations. Wheeled Skidders are not designed to push soil and have difficulty in installing water bars in steep terrain. If a bulldozer is not available, other water control structures may be a more viable option on steep ground. Proper disposal of oil and hydraulic fluids is a concern.

Track Skidders

Available in either cable or grapple models, the track skidder has a bulldozer-like undercarriage. They exert less ground pressure so they are generally better suited for wet sites. They are also equipped with a large articulating blade much like a bulldozer and are reasonably suited to move soil.

Farm Tractors

Farm tractors can be used for skidding, but are not designed for working in the woods and winching applications. As a rule they can only be used in flat terrain and/or dry conditions. Therefore, they typically do not cause a large amount of site disturbance.

LOADING EQUIPMENT

Knuckleboom Loader

A Knuckleboom Loader has a pivoting cab with a hydraulic arm and grapple used to load logs. Often, Knuckleboom Loaders will have delimbers and cut-off saw attachments, which speed up the product preparation prior to loading.



Knuckleboom Loader



Front-end Loader

Front-end Loader

A Front-end Loader is wheeled or track loader that is equipped with log forks. Their mobility makes them better suited for sorting logs by grade, length, etc.

KFCA Concerns: Front-end Loaders have a greater potential to cause water quality problems than Knuckleboom Loaders. They need a larger operating area resulting in more site disturbance and rutting in wet conditions. A concern from Knuckleboom Loader use is logging debris. The use of cut-off saws and de-limbers on the landing site concentrates logging slash in a relatively small area. Loggers need to be aware of where they push and pile their logging slash to avoid best management practice (BMP) violations. Proper disposal of oil and hydraulic fluids is also a concern.

COMMON HARVESTING TERMS

Buck - To saw a felled tree into shorter lengths.
Chaser - Member of a logging crew who unhooks the logs at the log landing and does other odd jobs.
Choker - Short length of cable or chain used to attach logs to a winch line and to the skidder.
Chokesetter - Person who places the choker cable around the log.
Crawler - Tractor that operates on tracks instead of wheels.
Cut-Off Saw/Slasher - A bar-saw attached to a Knuckleboom Loader that cuts the logs to length on the log landing prior to loading.
Deck - Pile of logs on a landing.
Directional Felling - Cutting techniques used to predetermine the direction a tree will fall.
Doyle Rule - Log rule used to estimate board foot volume.
Felling - Cutting of standing trees.
High Flotation Tires - Wide or tandem set of tires that help prevent harvesting equipment from sinking into soft ground.
Landing/Yard - Cleared area where logs are skidded for loading on transport vehicles.
Scale - Measure of the volume of a log or load of logs.
Sealed Bid Sale - Sale in which interested loggers/operators submit a written bid for the timber.
Shares - An agreement made between the logger and the landowner where payments are received by the landowner based on a percentage of the revenue generated as the timber is cut and sold.
Slash - The woody debris left after an area has been logged.
Stick - Pulpwood.
Stumpage - Value of timber as it stands (uncut).



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